The Effects of Lithium on Reticula-Rumen Motility of Sheep and Goats.

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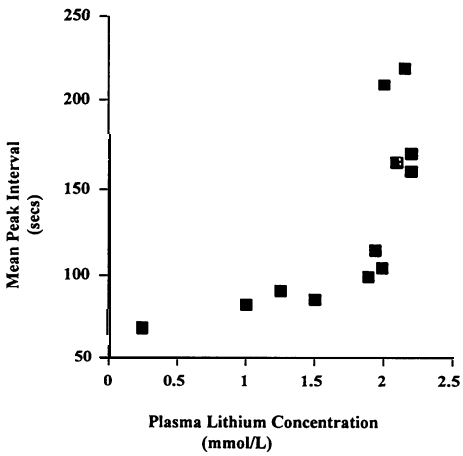
Lithium salts are used experimentally to induce food aversions and as a marker for measuring the intake of supplements (Ralphs, 1992).

Four sheep and four goats were fitted with rumen cannulae, housed in metabolism cages and fed 800g/day of a mixture of equal quantities of oaten and lucerne chaff dispensed at 2 hourly intervals. A balloon pressure transducer was placed in the reticulo-rumen and connected to a computerised recording apparatus allowing continuous recording of reticulo-rumen contractions. The animals were given a bolus injection of lithium chloride (133mg/kg sheep and 167mg/kg goats) intraruminally via the rumen cannulae. Pressure peaks corresponding to rumen contractions were monitored to determine mean peak intervals for 1 hour prior to injection and for 30 hours post injection.

The plasma lithium rose to reach a plateau level of about 2 mmol/L, 8 hours after injection. The mean responses for both sheep and goats are shown in Fig. 1. Rumen contractions were relatively unaffected until the plasma concentration reached 2 mmol/L. Above this level the contractions were grossly inhibited as indicated by a substantially increased mean peak interval.

Conditioned aversion to food does not occur until the plasma levels are above about 2 mmol/L (du Toit et *al*, 1991). We suggest that some of the response to food aversion induced by lithium may be associated with inhibition of gut motility.

Fig. 1 The effect of plasma lithium concentration on the interval between rumen contractions.



References

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